

PATENT SPECIFICATION

DRAWINGS ATTACHED

965,072



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COMPLETE SPECIFICATION

Resilient Support for Seats, especially for Motor Vehicles

I, BROR GOTHE PERSSON, of Oskarshamn, in the Kingdom of Sweden, a Swedish Subject, do hereby declare the invention for which I pray that a patent may be granted to me and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a resilient support for seats of the kind used in motor vehicles, such as trucks, and comprising a fixed lower part and an upper part which is depressible relative to the lower part against the action of a spring device.

When the vehicle is running on uneven roads the driver may be subjected to vertical accelerations of the order of 2g which means that the force depressing the seat equals twice the weight of the driver. Consequently, a heavy driver exerts a considerably higher load on the spring device of the seat support than a lighter driver, resulting in a certain risk of the spring device striking the bottom. However, this risk can be avoided by the provision of a progressively acting spring device. The object of the invention is to provide a simple construction of such a spring device for seat supports of the kind referred to.

In accordance with the invention the support for the seat is characterized in that the lower part thereof is provided with a pivoted lever which extends obliquely upwards toward the upper part of the seat support and is adapted to be actuated thereby and rests on a wheel or similar member which is movable along the lower part and adapted in response to the downward swinging movement of the lever to be displaced along the lower part against the action of a helical compression spring mounted on the lower part. An arrangement of this kind utilizes the fact that the force acting on the lever, that is, the load on the upper part exerts on the wheel a component which is diminished when the down-

ward movement of the lever against the lower part of the seat support is increased. As a result thereof, the spring device will act progressively. The face of the cam on the lever on which the wheel rolls during the swinging movements of the lever may be plain or curved depending on the desired progressivity of the spring characteristic. A suitable form of the curved profile of the cam face of the lever makes it possible to obtain a spring characteristic of the spring device which results in that persons of different weights will cause practically equal downward deflections.

A suitable embodiment of the seat support according to the invention is illustrated in the annexed drawings.

Fig. 1 is a lateral view of the resilient seat support, Fig. 2 is a top view of the fixed lower part of the support, the upper part of the support being omitted, and Fig. 3 is an end elevation of the support shown in Fig. 1.

The lower part of the support for the seat consists of a plate 1 adapted to be fixed in a motor vehicle. The plate has four fixed bearings 2 for two pairs of pivoted links 3, 4 of parallel linkages. The upper ends of the links are articulated to and carry the upper part 5 of the support on which a seat cushion and a backrest (not shown) are mounted.

Displaceably mounted on the plate 1 is a slide 6 the longitudinal position of which is determined by an adjusting screw 7. One end of the slide forms an abutment 8 for one end of a helical compression spring 9 the other end of which bears on a spring seat 10 connected to a stirrup 11 which in turn is displaceably mounted on a pair of rollers 12 adapted to run on individual ways 13 on the upper side of the slide. Between these ways there is a free space for a wheel 14 mounted on the shaft 15 of the rollers. Suitably the wheel and the rollers are in the form of ball bearings.

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The spring 9 is compressed by a lever 16 in the form of a plate which as illustrated is pivotally mounted between the front links 4 by means of pivots 17. The cam face 18 of the lever 16 abutting the wheel may be a plane cam face, or as illustrated a curved cam face; in this latter case the radius of curvature of the portion of the cam face adapted to co-operate with the wheel 14 will preferably be arranged to increase towards a maximum near the pivot of the lever 16.

Secured between the front links 4 is a plate 19 which has an abutment 20 bearing on any selected one of stepped shoulders 21 of a ring 22 which is mounted for angular movement on the lever 16. By turning one or the other of the shoulders of the ring into a position below the abutment 20 the level of the upper part of the support can be adjusted relative to the lever and the lower part. Such an adjustment can also be effected by means of the adjusting screw 7.

The above described spring device is progressively acting for the following reasons. If the upper part of the support is loaded by the weight of the driver the wheel 14 is acted upon by a component of force which tends to displace the wheel against the action of the spring which will be compressed in proportion to the magnitude of the component of force. The inclination of the tangent to the wheel at the point where the cam face of the lever is in contact with the wheel determines the magnitude of the component of force. The more the tangent is inclined, the smaller is said component which means that the spring device is acting progressively.

A suitable curvature of the cam face of the lever permits the springs characteristic of the spring device to be adapted such that drivers of different weights will cause practically the same downward deflection for equal shocks.

Instead of the links 3, 4 of the parallel linkages other means may be provided for guiding the vertical movements of the upper part which even may be movable along a fixed vertical axis relative to the lower part, in which case the lever bears displaceably on the lower side of the upper part.

WHAT I CLAIM IS:—

1. A resilient support for seats, especially for motor vehicles, comprising a fixed lower part and an upper part which carries the seat and is depressible relative to the lower part against the action of a spring device, characterized in that the lower part is provided with a pivoted lever which extends obliquely upwards toward the upper part and is adapted

to be actuated thereby and rests on a wheel or similar member which is movable along the lower part and adapted in response to the downward swinging movement of the lever to be displaced along the lower part against the action of a helical compression spring mounted on the lower part.

2. A seat support according to claim 1, characterized in that the helical compression spring is inserted between an abutment adjustable longitudinally of the spring and a spring seat carrying the wheel which is in contact with the lever.

3. A seat support according to claim 1 or 2, characterized in that the wheel is rotatably mounted on a shaft carried by two supporting rollers mounted one on either side of the wheel and adapted to roll on individual ways on the lower part, the wheel being freely rotatably carried between the rollers.

4. A seat support according to any of the preceding claims, characterized in that the lever contacting the wheel carries the upper part by means of an adjustable support adapted to permit the upper part to be raised or lowered relative to the lever.

5. A seat support according to claim 4, characterized in that the adjustable support on the lever consists of a ring mounted for angular movement on the lever and having stepped shoulders adapted to be turned to a position for supporting an abutment connected to the upper part.

6. A seat support according to any of the preceding claims, characterized in that the face of the lever contacting the wheel is plane.

7. A seat support according to any of claims 1 to 5, characterized in that the face of the lever contacting the wheel is curved.

8. A seat support according to claim 7, characterized in that the radius of curvature of the curved face of the lever increases along the part of the lever cooperating with said wheel and is a maximum near the pivot of the lever.

9. A seat support according to any of the preceding claims, characterized in that the upper part of the seat is carried by pivoted links of parallel linkages, said links being articulated to the upper part and to the lower part.

10. A resilient support for seats especially for motor vehicles, substantially as described with reference to the accompanying drawings.

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Fig 1

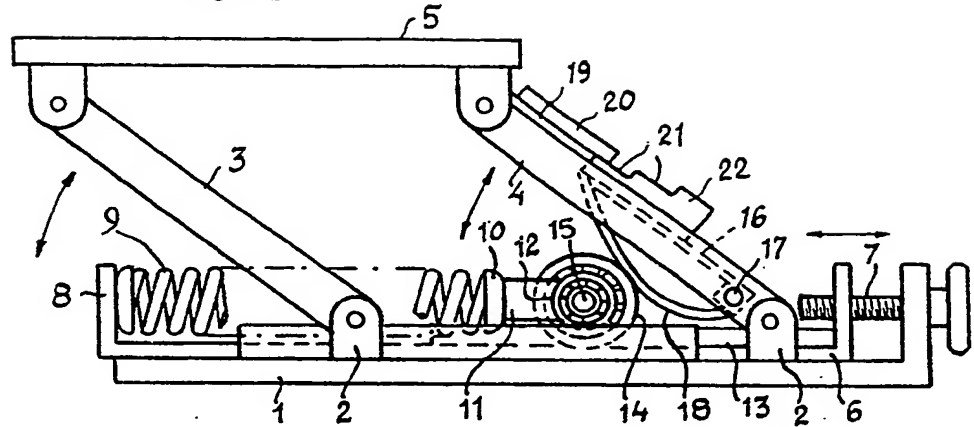


Fig 2

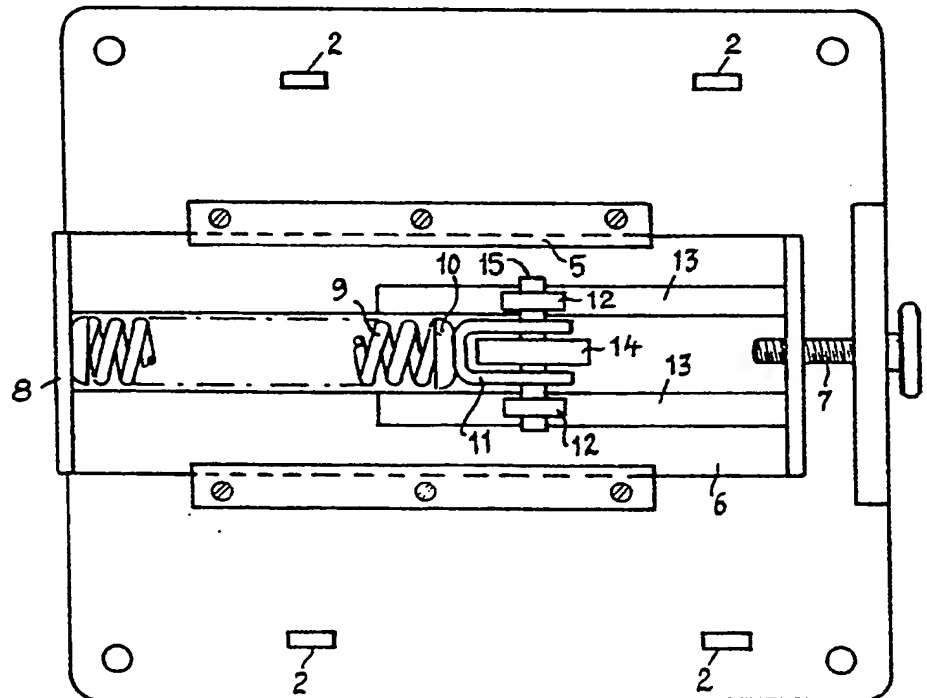


Fig 3

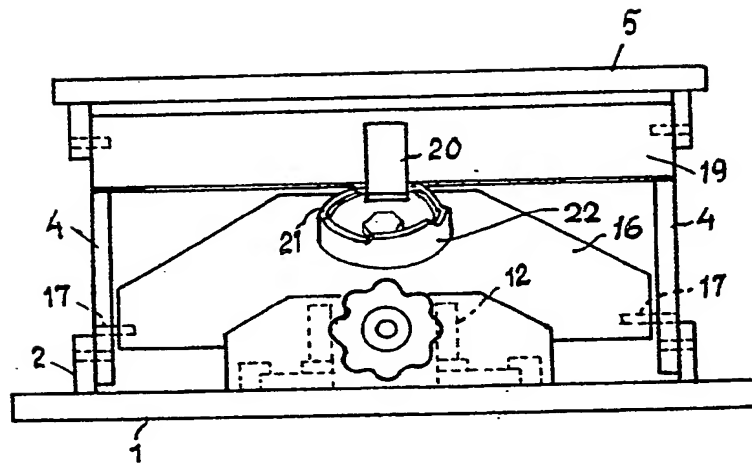
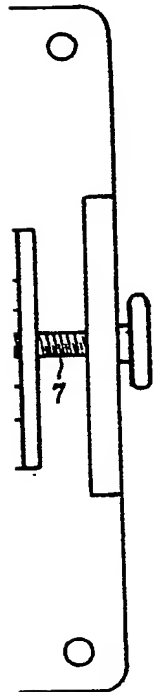
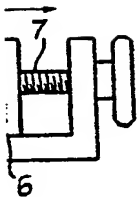


Fig 1

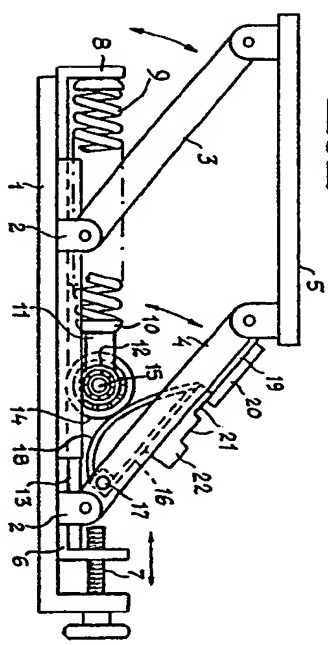


Fig 2

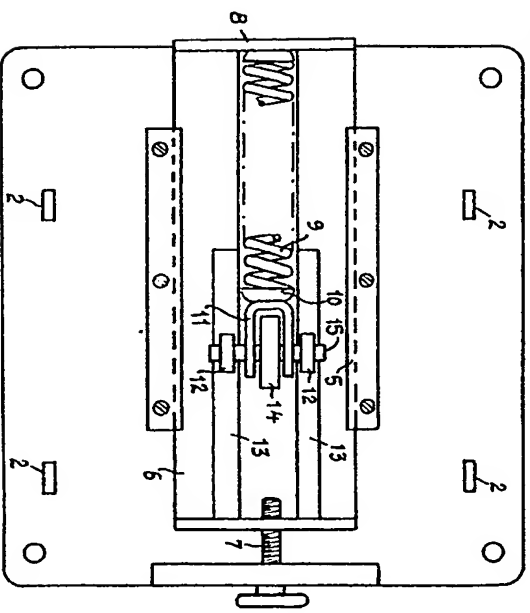
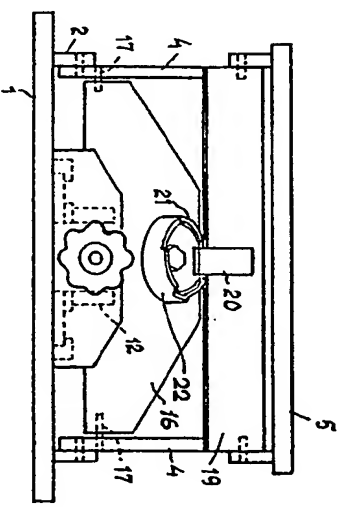


Fig 3



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